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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,497	07/24/2003	Joong Gu Woo	KBPLP0104US	1982
23908	7590	05/11/2006	EXAMINER	
RENNER OTTO BOISSELLE & SKLAR, LLP 1621 EUCLID AVENUE NINETEENTH FLOOR CLEVELAND, OH 44115			DANIELSEN, NATHAN ANDREW	
			ART UNIT	PAPER NUMBER
			2627	

DATE MAILED: 05/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/626,497	Applicant(s) WOO, JOONG GU	
	Examiner Nathan Danielsen	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 and 22 August 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____</p> |
|---|--|

DETAILED ACTION

1. Claims 1-8 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (pages 3-5 of the specification as originally filed). See MPEP § 608.02(g). The drawings are further objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "209" and "304" have both been used to designate a hard disk connector/hard disk connecting unit, reference characters "208" and "301" have both been used to designate a very small-sized hard disk, and reference characters "210" and "305" have both been used to designate a hard disk controller. Additionally, Applicant is advised to change any reference characters in the specification upon changing them in the drawings.

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claim 5 is objected to because, in light of Applicant's specification, the limitation "the hard disk controller IC supporting the ATA/ATAPI mode or compact flash type" appears to be incomplete. The examiner suggests that this limitation be changed to --the hard disk controller IC supporting the

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ATA/ATAPI mode or compact flash type II mode--. Support for this change can be found in ¶ 1 on page 10. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is rejected as being indefinite because: 1) it is unclear if the claimed "control unit" is meant to be included in the "each of the units" or not; 2) it is unclear if Applicant intends to claim two separate memories (see lines 2 and 10) or if the memory recited in line 10 is supposed to be the same memory recited in line 2; 3) the phrase "a robust hard disk" renders the scope of the claim indefinite because it is unclear, even in light of the specification, what parameters/characteristics of the hard disk cause it to be "robust"; 4) the phrase "very small size" renders the scope of the claim indefinite because it is unclear exactly what is meant by this phrase; and 5) the phrase "large capacity" renders the scope of the claim indefinite because it is unclear exactly what is meant by this phrase. For purposes of examination, the examiner has interpreted the control unit to not include itself, the two claimed memories to be one and the same as well as of the semiconductor/RAM/ROM type, "very small size" to mean smaller than a standard desktop computer hard drive, and "large capacity" to mean a practical, useable capacity (e.g. at least 100 Mb).

Regarding claim 2, it is rejected as being indefinite because: 1) it is unclear if Applicant intends to claim two separate hard disks or if the "robust hard disk" in claim 1 and the "very small-sized hard disk" in claim 2 are intended to be the same hard disk; 2) the phrase "very low power consumption" renders the scope of the claim indefinite because it is unclear what is meant by "very low"; and 3) the phrase "a very-small-sized hard disk which has ... robustness" renders the scope of

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the claim indefinite because it is unclear, even in light of the specification, what parameters/characteristics of the hard disk cause it to have "robustness". For purposes of examination, the examiner has interpreted the two claimed hard disks to be one and the same and the phrase "very low" to mean drawing approximately the maximum allowable current or less from a USB port.

Regarding claim 7, it is rejected as being indefinite because it is unclear is Applicant intends to claim two separate hard disk connectors (see claim 2, from which claim 7 depends), or if the hard disk connector of claim 7 is intended to be the same as that of claim 2. For purposes of examination, the examiner has interpreted the two claimed hard disk connectors to be one and the same.

Regarding claims 3-6 and 8, they are rejected as being indefinite because of their dependence on rejected base claims.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1 and 3-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Koizumi et al (US Patent 6,476,994; hereinafter Koizumi).

Regarding claim 1, Koizumi discloses a portable data storage device (disk device 101 including connector portion 103 in figure 5), which is equipped with a memory (ROM and RAM in drive control portion 603 in figure 5), comprising:

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a hard disk unit (disk device 101 in figure 5) for mounting a robust hard disk (HDA 605) of a very small size (col. 10, lines 4-7) and a large capacity (suggested in col. 10, lines 17-29) and controlling the same (inherent in the CPU in drive control portion 603); a display unit for notifying a user of a state of the device (figure 14 and col. 14, lines 50-67); an interface unit (connector portion 103) for transferring information with an external device and receiving power supplied from the external device, wherein the power supplied is sufficient for operation of at least the hard disk unit (abstract); a control unit for controlling each of the units (control program 604); and a memory unit (drive control portion 603) equipped with a ROM or RAM for providing a memory required for the control unit (ROM and RAM in drive control portion 603).

Regarding claim 3, Koizumi discloses where the interface unit is any one of a USB interface, parallel interface, serial interface, PCMCIA interface, or IEEE 1394 interface (col. 10, lines 9-11).

Regarding claim 4, Koizumi discloses where, when connected to a personal computer (workstation computer device 202) with the interface equipped (slot 203), the interface is automatically recognized as a virtual drive without turning on and off the power (inherent in workstation computer devices having properly configured operation systems such as Microsoft™ Windows 2000™ as evidenced by Applicant's admitted prior art).

Regarding claim 5, Koizumi discloses where the hard disk controller has inside a hard disk controller IC (inherent in the CPU in drive control portion 603), the hard disk controller IC supporting the ATA/ATAPI mode (inherent for compatibility with notebook computers) or compact flash type II mode.

Regarding claim 6, Koizumi discloses where the portable data storage device is of a size capable of being held by the hand and put into a pocket of a dress shirt when carried (col. 10, lines 4-7).

Regarding claim 7, Koizumi discloses where the very small-sized hard disk includes: a hard disk plate and a hard disk arm (figure 5); and

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a hard disk dedicated controller for directly controlling the hard disk arm and the hard disk plate (CPU in drive control portion 603); and

a hard disk connector for connecting the hard disk and the hard disk controller, wherein the hard disk connector is a connector with 20 pins (lines leading from drive control portion 603 to HAD 605 in figure 5 where these lines represent a certain number of individual elements sufficient for operation of the connected parts).

Claim Rejections - USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koizumi, in view of Nguyen et al (US Patent Application Publication 2002/0171963; hereinafter Nguyen) and Bajorek et al (US Patent 5,264,975; hereinafter Bajorek).

Regarding claim 2, Koizumi discloses everything claimed, as applied to claim 1. Additionally, Koizumi discloses where the hard disk unit includes:

a hard disk which has a very low power consumption (0.6 A mode in figures 3-5) and robustness (suggested by the portability of the device and its ability to be used with notebook computers, as shown in col. 8, lines 44-56);

a hard disk controller controlling the operation of the hard disk under control of the control unit (CPU in drive control portion 603); and

a hard disk connecting unit enabling the connection and linking between the hard disk controller and the very small-sized hard disk (lines leading from drive control portion 603 to HDA 605 in figure 5).

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However, Koizumi fails to disclose a very small-sized hard disk which has a size of about 1 square inch and a storage capacity of 1 to 100GB.

In the same field of endeavor, Bajorek discloses where the hard disk unit includes a very small-sized hard disk which has a size of about 1 square inch.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the hard drive of Koizumi very small, as taught by Bajorek, for the purpose of minimizing the power consumption of a hard drive (col. 1, lines 41-48).

In the same field of endeavor, Nguyen discloses where the hard disk hard disk has a storage capacity of 1 to 100GB (¶ 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the hard disk of Koizumi to have the storage capacity as taught by Nguyen, for the purpose of reducing the power consumption of a mass storage device (Nguyen, ¶ 7).

12. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koizumi, in view of Deng et al (US Patent Application Publication 2003/0005278; hereinafter Deng).

Regarding claim 3, Koizumi discloses everything claimed, as applied to claim 1. However, Koizumi fails to disclose where the interface is either a USB interface or an IEEE 1394 interface.

In the same field of endeavor, Deng discloses where the interface is either a USB interface or an IEEE 1394 interface (figures 2 and 3)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a USB or an IEEE 1394 interface with the device of Koizumi, for the purpose of acting as a removable boot device (¶ 9).

Regarding claim 8, Koizumi discloses everything claimed, as applied to claim 3. However, Koizumi fails to disclose where the device has a USB or IEEE 1394 interface and can be used as a boot device.

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In the same field of endeavor, Deng discloses where, when the device is equipped with the USB or IEEE 1394 interface and a personal computer is booted from the USB or IEEE 1394 interface, the computing environment of the personal computer is implemented based on information stored in the device (§ 9 and figures 2 and 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a USB or an IEEE 1394 interface with the device of Koizumi, for the purpose of acting as a removable boot device (§ 9).

13. Alternatively, claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deng, in view of Nguyen and Bajorek.

Regarding claim 1, Deng discloses a portable data storage device (title), which is equipped with a memory (figures 1-3), comprising:

- a display (LED indicator 5 in figures 1-3) unit for notifying a user of a state of the device;
- an interface unit (general-purpose interface control module 21 in figure 1) for transferring information with an external device (§ 32) and receiving power supplied from the external device, wherein the power supplied is sufficient for operation of at least the hard disk unit (§ 4, lines 15 ff.);
- a control unit for controlling each of the units (microprocessor and control module 22); and
- a memory unit (buffer modules 23, 203, and 213) equipped with a ROM or RAM for providing a memory required for the control unit.

However, Deng fails to disclose a hard disk unit for mounting a robust hard disk of a very small size and a large capacity and controlling the same.

In the same field of endeavor, Nguyen discloses a hard disk unit (§s 22-25) for mounting a robust hard disk (inherent in laptop computer hard drives, see § 7) of a large capacity (§ 4) and controlling the same (inherent as all drives, whether they are flash, floppy magnetic, hard magnetic, optical, or magneto-optical, require a controller).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device of Deng with the low-powered hard drive of Nguyen and small-sized hard drive of Bajorek, for the purpose of reducing the power consumption of a mass storage device for a notebook computer (Nguyen, ¶ 7). (Further motivation for this combination of references is found in Haitani (US Patent Application Publication 2002/0030917), where Haitani gives the well-known power output capabilities of a USB port, along with a method to reduce the overall power consumption of a floppy disk drive connected to and powered by said USB port. Furthermore, the hard drive of Nguyen could, with the appropriate modifications, be powered by and transfer data through a USB port without any additional power connections required: Haitani teaches that a USB port can supply approximately 500 mA of current at +5 V and Nguyen teaches a peak current draw of 525 mA at +5 V during a spin-up process and significantly less than that during all other processes.) However, Deng, in view of Nguyen, fails to disclose where the hard disk unit is of a very small size.

In the same field of endeavor, Bajorek discloses where the hard disk unit is of a very small size (col. 2, lines 31-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the hard drive device of Deng and Nguyen very small, as taught by Bajorek, for the purpose of minimizing the power consumption of a hard drive (Bajorek, col. 1, lines 41-48).

Regarding claim 2, Deng, in view of Nguyen and Bajorek, discloses everything claimed, as applied to claim 1. However, Deng fails to disclose a specific capacity, size, power requirements, mechanical structure, and electrical controlling and connecting elements.

In the same field of endeavor, Nguyen discloses where the hard disk unit includes:

a hard disk which has a storage capacity of 1 to 100GB (¶ 4), a very low power consumption (¶s 23-25; note the power requirements of the hard drive and the well-known power-

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supplying capabilities of a USB port as evidenced by) and robustness (inherent in laptop computer hard drives, see ¶ 7);

a hard disk controller controlling the operation of the hard disk under control of the control unit (control logic 190 in figure 6); and

a hard disk connecting unit enabling the connection and linking between the hard disk controller and the very small-sized hard disk (lines with arrowheads connecting control logic 190 to motor drive 120 and storage drive 110).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device of Deng with the low-powered hard drive of Nguyen, for the purpose of reducing the power consumption of a mass storage device for a notebook computer as set forth above with respect to claim 1.

In the same field of endeavor, Bajorek discloses where the hard disk unit includes a very small-sized hard disk which has a size of about 1 square inch.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the hard drive in the combination of Deng and Nguyen very small, as taught by Bajorek, for the purpose of minimizing the power consumption of a hard drive (col. 1, lines 41-48).

Regarding claim 3, Deng, in view of Nguyen and Bajorek, discloses everything claimed, as applied to claim 1. Additionally, Deng discloses where the interface unit is any one of a USB interface, parallel interface, serial interface, PCMCIA interface, or IEEE 1394 interface (figures 2 and 3).

Regarding claim 4, Deng, in view of Nguyen and Bajorek, discloses everything claimed, as applied to claim 3. Additionally, Deng discloses where, when connected to a personal computer with the interface equipped, the interface is automatically recognized as a virtual drive without turning on and off the power (¶ 4, lines 15 ff.).

Regarding claim 5, Deng, in view of Nguyen and Bajorek, discloses everything claimed, as applied to claim 2. However, Deng fails to disclose the internal circuitry and software compatibility of the hard drive.

In the same field of endeavor, Nguyen discloses where the hard disk controller has inside a hard disk controller IC (inherent in control logic 190), the hard disk controller IC supporting the ATA/ATAPI mode (inherent for compatibility with notebook computers) or compact flash type II mode.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device of Deng with the hard disk controller of Nguyen, for the purpose of monitoring which mode the system is operating in at any given time (Nguyen, ¶ 26).

Regarding claim 6, Deng, in view of Nguyen and Bajorek, discloses everything claimed, as applied to claim 1. Additionally, Deng discloses where the portable data storage device is of a size capable of being held by the hand and put into a pocket of a dress shirt when carried (¶ 22, lines 12 ff.).

Regarding claim 7, Deng, in view of Nguyen and Bajorek, discloses everything claimed, as applied to claim 2. However, Deng fails to disclose the particulars of a hard drive.

In the same field of endeavor, Nguyen discloses where the very small-sized hard disk includes:

- a hard disk plate and a hard disk arm (inherent in hard drives); and
- a hard disk dedicated controller for directly controlling the hard disk arm and the hard disk plate (control logic 190); and
- a hard disk connector for connecting the hard disk and the hard disk controller, wherein the hard disk connector is a connector with 20 pins (lines with arrowheads connecting control logic 190 to motor drive 120 and storage drive 110 where these lines represent a sufficient number of individual elements sufficient for operation of the connected parts).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device of Deng with the low-powered hard drive of Nguyen, for the purpose of reducing the power consumption of a mass storage device for a notebook computer (Nguyen, ¶ 7).

Regarding claim 8, Deng discloses everything claimed, as applied to claim 3. Additionally, Deng discloses where, when the device is equipped with the USB or IEEE 1394 interface and a personal computer is booted from the USB or IEEE 1394 interface, the computing environment of the personal computer is implemented based on information stored in the device (¶ 9 and figures 2 and 3).

Response to Arguments

14. Applicant's arguments, see pages 4-6, filed 01 February 2006, with respect to the rejection(s) of claim(s) 1 under 35 USC § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Koizumi, Deng, Bajorek, and Nguyen, as shown above.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Danielsen whose telephone number is (571) 272-4248. The examiner can normally be reached on Monday-Friday, 8:30 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A.L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nathan Danielsén *ND*
05/01/2006


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